

ACCESS CHANNEL STRUCTURE FOR WIRELESS
COMMUNICATION SYSTEM

ABSTRACT OF THE DISCLOSURE

A technique for efficient implementation of pilot signals on a reverse link in a wireless communication system. An access channel is defined for the reverse link such that within each frame, or epoch, a portion is dedicated to sending only pilot symbols. Another portion of the frame is reserved for sending mostly data symbols; however, within this second portion of the frame, additional pilot symbols are interleaved among the data symbols. The pilot symbol or preamble portion of the access channel frame allows for efficient acquisition of the access signal at the base station, while providing a timing reference for determining the effects of multipath fading. In particular, a pilot correlation filter provides a phase estimate from the pilot symbols in the preamble portion, which is then used to decode the data symbols in the payload portion. An access acquisition portion of the receiver uses the phase estimates provided by the pilot correlation filter to process the output of a data symbol correlation filter. The additional pilot symbols embedded in the payload portion are used in a cross product operation to further resolve the effects of multipath fading.